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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,958	09/09/2003	Akihiro Ouchi	CFA 00006 US	3512

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Canon U.S.A. Inc.
Intellectual Property Department
15975 Alton Parkway
Irvine, CA 92618-3731

EXAMINER

SHERMAN, STEPHEN G

ART UNIT PAPER NUMBER

2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/658,958		OUCHI ET AL.	
	Examiner		Art Unit	
	Stephen G. Sherman		2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on the 14 November 2006 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 3-9 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuhashi et al. (US 6,583,771) in view of Brenner (US 6,870,518).

Regarding claims 1 and 16, Furuhashi et al. disclose an image display apparatus (Figure 1) and a display control apparatus for controlling an image display apparatus (Figure 1), comprising:

input/output means for transferring image data input from a first image display device having a display unit, wherein the first image display device is disposed at an upstream location to a second image display device (Figure 1, item 104 and column 5, lines 9-14. The examiner interprets that since the input data processor 104 receives image information from the display data bus 103, and then transfers the image input data to the next image display device 101-2 located downstream, that this would be an input means for transferring data between the two image display devices and output means for transferring the data to the next display device.);

Furuhashi et al. fail to teach of an image display apparatus, comprising; acquisition means for acquiring resolution information of the second image display device having a second display unit; generation means for generating resolution information on the basis of the resolution information acquired by the acquisition means and a resolution of the display unit; and first storage means for storing the generated resolution information for supply to the image display device disposed at the upstream location.

Brenner discloses of an image display apparatus (Figure 1), comprising: acquisition means for acquiring resolution information of the second image display device having a second display unit (Figure 1 and column 4, lines 43-53 explain that the bus 26 acquires the resolution information for monitor 10b.);

generation means for generating resolution information on the basis of the resolution information acquired by the acquisition means and a resolution of the display unit (Column 4, lines 43-53 explains that screen resolution register 36 (Shown in Figure 2 as part of FIFO CONTROL LOGIC 28) has the complete resolution of the entire screen, which is the resolution of monitor 10a and the resolution of monitor 10b added together.); and

first storage means for storing the generated resolution information for supply to the image display device disposed at the upstream location (Figure 1 shows FIFO 1 which is a memory device for storing the information from the FIFO CONTROL LOGIC 28, as explained in column 4, lines 6-21.).

Therefore it would have been obvious to "one of ordinary skill" in the art to use method for controlling multiple monitors as taught by Brenner with the multi-display control system taught by Furuhashi et al. in order to provide an economic and fast way of controlling two monitors on the basis of an input-side pixel data stream..

Regarding claim 9, this claim is rejected under the same rationale as claim 1.

Regarding claim 3, Furuhashi et al. and Brenner disclose an image display apparatus according to claim 1.

Furuhashi et al. also disclose an image display device further comprising direction detection means for determining a direction, wherein the direction is determined by assigning a value based upon detecting whether at least one image display device connected at a downstream location from the first image display device is arranged in a vertical or horizontal direction (Figures 5 and 6 and column 8, line 47 to column 9, line 32. The examiner interprets since identification numbers are given to the display devices based on their locations in the multi-display system that it is detected whether the image display device is located in a horizontal or vertical direction with respect to the first image display device connected to the controller. For example is the display device connected to the controller is device 1, and the numbers are assigned first to the display devices located vertically than the value of the device downstream from device 1 would be device 2. Therefore the ID number i.e. value is assigned based upon the direction on the display device.), and

wherein the generation means generates the resolution information by cumulatively adding the resolution of the display unit with the resolution information acquired by the acquisition means in the direction determined by the direction detection means (Figures 5 and 6 and column 9, lines 14-32. The examiner interprets that since the display units located at directions determined by the direction detection means are identified by ID numbers and then the sum of a number of lines corresponding to a range from the leading edge of the vertical synchronizing signal, that this is adding the resolution cumulatively in the direction detected.).

Regarding claim 4, Furuhashi et al. and Brenner disclose an image display apparatus according to claim 1.

Furuhashi et al. also disclose an image display device further comprising detection means for detecting a location of a present image display device in a multi-display device system (Figure 1, item 129 and Figures 5 and 6 and column 8, line 47 to column 9, line 32. The examiner interprets since identification numbers are given to the display devices based on their locations in the multidisplay system that the location of a present image display device is detected.);

determination means for determining which part of the image data should be displayed by a present display unit of the present image display device on the basis of the location detected by the detection means (Figure 1, item 129 and Figures 5 and 6 and column 8, line 47 to column 9, line 32. The examiner interprets since identification numbers are given to the display devices based on their locations in the multidisplay

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system that this determines which part of the image data should be displayed by the present display unit.); and

display control means for displaying the part of the image data (Figure 1, item 131.).

Regarding claim 5, Furuhashi et al. and Brenner disclose an image display device according to claim 4.

Furuhashi et al. also disclose an image display apparatus

wherein the display control means determines the display scaling factor on the basis of the number of pixels of the part of the image data to be displayed and on the basis of the resolution of the present display unit (Figure 1, items 112, 120 and 121 and column 9, lines 33-54. The examiner interprets that the enlargement rate numerator and the enlargement rate denominator are determined based on the resolution of the image devices, which sets the display scaling factor, and since all of the displays are used in the determination then the display scaling factor would be determined on the basis of the resolution of the "present" display unit.),

converts the resolution of the part of the image data in accordance with the determined display scaling factor (Figure 1, item 112), and

displays the part of the image data on the present display unit (Figure 1, items 116 and 102-1 and column 9, lines 33-54).

Regarding claim 6, Furuhashi et al. and Brenner disclose an image display apparatus according to claim 4.

Furuhashi et al. disclose an image display apparatus wherein the detection means comprises

second storage means for acquiring chain connection information indicating the manner in which further image display devices are chain-connected at downstream locations of the present image display device (Figure 1, item 129 and column 5, lines 58 to column 6, line 3. The examiner interprets that the ID setting circuit 129 is a storage means for acquiring chain connection information since it is connected to the control data processing circuit 131, which is connected to the control data processing circuits of the downstream devices 101-2 through 101-n and that the ID number must be set in accordance with the number of display devices connected to each other; therefore the ID setting circuit must acquire information according to how the rest of the display devices are connected.),

generating chain connection information associated with the present image display device on the basis of the acquired chain connection information (Figure 1 and column 5, line 58 to column 6, line 3. The examiner interprets that the ID setting circuit not only acts as a storing means for the chain information but also generates chain information since the ID number must be set based on the ID numbers of the other connected display devices.),

storing the generated chain connection information such that an upstream image display device at an upstream location from the present image display device can

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acquire the chain connection information (Figure 1 and column 5, line 58 to column 6, line 3. The examiner interprets that the ID number is stored in the ID setting circuit which is connected to the control data processing circuit which communicates between display devices, i.e. a display device at an upstream location.); and

third storage means for acquiring a first value, wherein the first value is the total number of image display devices connected at downstream locations from the present image display device and storing the value such that the upstream image display device can acquire the first value (Figure 1, item 130 and column 5, line 58 to column 6, line 3. The examiner interprets that the total number of display devices is stored in the data storing memory 130 which is available for the display devices 101-1 to 101-n connected through control processing circuit 131 to acquire.) ,

wherein the detection means determines the location of the present image display device in the multidisplay device system on the basis of the chain connection information and value (Figure 1, item 129 and Figures 5 and 6 and column 8, line 47 to column 9, line 32. The examiner interprets since identification numbers are given to the display devices based on their locations in the multidisplay system that the location of a present image display device is determined based on the total number of displays and chain information received from the adjacent display devices.).

Regarding claim 7, Furuhashi et al. and Brenner disclose an image display apparatus according to claim 6.

Furuhashi et al. also disclose an image display apparatus further comprising

direction detection means for detecting whether the image display devices connected at downstream locations from the present image display device are arranged in the vertical or horizontal direction (Figure 1, item 129 and Figures 5 and 6 and column 8, line 47 to column 9, line 32. The examiner interprets that since identification numbers are given based on the display devices' locations, that means are provided to determine if the device is connected in the horizontal or vertical direction.),

wherein the chain connection information includes a second value, wherein the second value is information indicating the total number of image display devices chain-connected in the vertical direction and information indicating the total number of image display devices chain-connected in the horizontal direction and a third value, wherein the third value is information indicating the total number of image display devices chain-connected in the horizontal direction (Figure 1 and column 5, line 58 to column 6, line 3. The examiner interprets that since the ID number is set based on the horizontal or vertical direction, that information must be passed between the display devices so that the ID number can be set based on the horizontal and vertical directions. Column 6, lines 30-42 explain that horizontal and vertical write widths are stored in memory, where the horizontal and vertical write widths depend upon how many displays are connected to the system.).

Regarding claim 8, Furuhashi et al. and Brenner disclose a multidisplay system including a plurality of image display apparatus according to claim 1.

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Furuhashi et al. also disclose wherein the plurality of image display apparatus are connected to each other and where a host computer is connected to an image display apparatus at a most upstream location of the connected plurality of image display apparatus (Figure 1 and column 5, line 58 to column 6, line 3. The examiner interprets that the external system could be a host computer.).

Regarding claim 11, this claim is rejected under the same rationale as claim 3.

Regarding claim 12, this claim is rejected under the same rationale as claim 4.

Regarding claim 13, this claim is rejected under the same rationale as claim 5.

Regarding claim 14, this claim is rejected under the same rationale as claim 6.

Regarding claim 15, this claim is rejected under the same rationale as claim 7.

6. Claims 2, 10 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuhashi et al. (US 6,583,771) in view of Brenner (US 6,870,518) and further in view of Shirasaki et al. (US 6,943,753).

Regarding claims 2 and 17, Furuhashi et al. and Brenner disclose an image display apparatus according to claims 1 and 16.

Furuhashi et al. also disclose wherein a storage means stores the resolution information generated by the generation means by rewriting a corresponding item of the information in the memory (Figure 1, items 110 and 111 and column 6, lines 30-42. The examiner interprets that since the positions can be controlled by changing the write positions, that this changes the resolution and this information is stored in the memory.).

Brenner also discloses communication processing means for performing communication with an external device (Figure 1 shows host bus 26 which communicates with monitors 10a and 10b.);

wherein the acquisition means acquires resolution information using the communication processing means (Figure 1 and column 4, lines 43-53 explain that the bus 26 acquires the resolution information, which means that the acquisition unit is the communication processing means.); and

where the first storage means stores the resolution information generated by the generation means by rewriting a corresponding item in the memory (Figure 1 shows FIFO 1 which is a memory device for storing the information from the FIFO CONTROL LOGIC 28, as explained in column 4, lines 6-21.).

Furuhashi et al. and Brenner fail to teach that the display device further comprises: communication processing means for performing DDC communication with an external device; and a memory for storing EDID.

Shirasaki et al. also disclose a display device further comprising communication processing means for performing DDC (Display Data Channel) communication with an external device (Figure 1, item 55); and

a memory for storing EDID (Extended Display Identification Data) information transformed in the DDC communication (Figure 1, item 54).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to replace the communications means used by the combination Furuhashi et al. and Brenner with the DDC communications means taught by Shirasaki et al. in order to allow for a communication processing device which can achieve automatic environment settings, i.e. plug and play, between the display monitors.

Regarding claim 10, this claim is rejected under the same rationale as claim 2.

Regarding claim 18, this claim is rejected under the same rationale as claim 2.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baudisch et al. (US 2002/0167460) disclose a method of using two or more display units with different resolutions which have been combined such that the geometry of images displayed across the multiple display units is preserved and the image appears to be substantially continuous to a viewer of the image.

Kidney et al. (US 2002/0140625) disclose the communication between two devices with display units in which an image is shown on both of the display units.

Nishida (US 5,767,818) discloses a display device which includes a simplified wiring for respective display elements in order to facilitate the assembly and maintenance.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/658,958

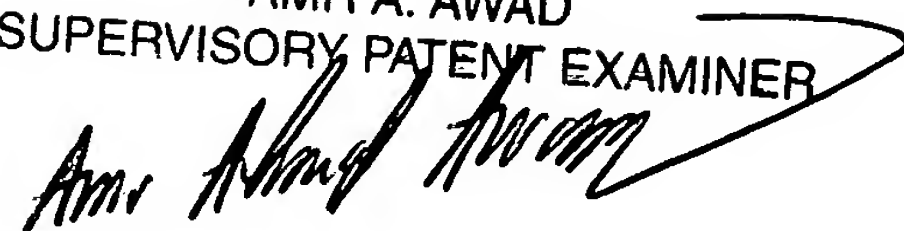
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17 January 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", is written over the printed name and title. The signature is stylized and cursive.